Channel Islands National Marine Sanctuary
Sanctuary Advisory Council

Research Activities Panel

DRAFT Key Meeting Outcomes
April 15, 2015
CINMS Ocean Science Education Building, UCSB

Attendance:

Robert Warner	Ben Ruttenberg	Rachel Cartwright
Chris Caldow	Jenn Caselle	Sean Hastings
Chris Mobley	Milton Love	Michael Murray
Julie Bursek	Steve Wertz	Julia Leo
Ryan Freedman	Jessie Altstatt	Steve Worth
Mark Steele	David Kushner	John Richards
Dave Siegel	Jonna Engel	Morgan Visalli
Dan Reed	Donna Schroeder	

Public Attendance: Kristi Birney, Jenna Driscoll, Lee Moldaver, Kristen Hislop, Paul Petrich

CINMS Announcements

Sanctuary Superintendent Chris Mobley welcomed the group and discussed the importance of the sanctuary's research partnerships with agencies and universities including the Bureau of Ocean Energy Management (BOEM), National Aeronautics and Space Administration (NASA), and University of California Santa Barbara (UCSB).

Turnover in CINMS research team and introductions to new additions –
There has been substantial turnover with the departure of Steve Katz, Dani Lipski, Natalie Senyk, and Ben Waltenberg. The research team is completely re-organized and welcomes a number of new staff.

Chris Caldow – The new research coordinator comes to CINMS after being the Chief of the Biogeography branch in the National Centers for Coastal Ocean Science (NCCOS). In his time with the Biogeography branch, Chris led efforts across the nation to provide scientific expertise to a number of management entities. He looks forward to establishing new research partnerships and working with existing partners to continue research around CINMS

Julie Bursek is the team lead for CINMS education and outreach as well as the unit diving supervisor.

Ryan Freedman is working as a Research Specialist for CINMS after a year as a California Sea Grant Fellow at CINMS

Libby Mackie is CINMS' Vessel Operations Coordinator.

New RAP invitees include Ben Ruttenberg (Cal Poly), Cause Hanna and Rachel Cartwright (Cal State Channel Islands).

Upcoming opportunities for RAP

Large Vessel Time

CINMS recently had 10 operational days aboard NOAA Ship Bell M. Shimada for a research cruise focusing on the effects of ocean acidification on deep water coral as well as sanctuary mapping efforts. There may also be some local opportunities aboard the NOAA ship OKEANOS EXPLORER. Additionally, there is potential for ocean exploration with the Ocean Exploration Trust's R/V Nautilus in CINMS and the surrounding waters. Bob Ballard has an office at CINMS as well as a seat on the UCSB Board of Trustees. He will be active in raising money for OCTOS.

ONMS Leadership Team meeting in Santa Barbara this year

It will occur the week of September 14 and a visit to OSEB/UCSB will likely be included in the agenda. A workshop on the Center of Excellence is planned along with presentations on emerging marine technologies.

Shearwater/Sharkcat vessel allocation

Timing and mission relevance is important for cruises requesting time aboard sanctuary vessels. Cruise purposes must fall within the sanctuary's mission. A number of projects have been allocated sea days aboard CINMS' vessels this year. UCSB liability issues appear to be cleared with having students aboard the Shearwater. There have been 40 days allocated in 2015 for supported days at sea and some days are still open if researchers have funding to cover operational coasts. Next year researchers should apply for vessel support through the RFP process which occurs early in the year. For more vessel information, please contact Libby Mackie (Elizabeth.mackie@noaa.gov).

Mechanisms for external funding of vessels

CINMS has a new Memorandum of Agreement with UCSB, including $130K in funds for a post-doc. Another new mechanism for moving money to cost-share vessel days is available to researchers as CINMS is also working with Cardinal Point Captains for vessel operations.

CINMS Research Program Prioritization

Sean Hastings is the Resource Protection coordinator at CINMS and took time to explain the scientific information gaps needed by CINMS managers. His talk focused on two major concerns of managers: the risk of large whale mortality from ship strikes and the MPAs around the island. There is a large need for socio-economic research for these issues. CINMS is working with NCCOS and Bren to start to fill some of these socio-economic questions.

Sean explained that anything that would violate sanctuary activities requires a permit (e.g., disturbance of the seabed, discharge, or flying below 1000 feet within the sanctuary). Sean coordinates with Brian Owens at CDFW and noted that activities in state reserve waters do not require a CINMS permit.

Research priorities

Chris Caldow discussed CINMS mapping efforts and shared the current priority map. He noted that the recent research cruise with NOAA ship Bell M. Shimada revealed an uncharted pinnacle in sanctuary waters. Currently less than half of CINMS is mapped and one of the major goals of the CINMS research department is fill in the bathymetry gaps around the sanctuary. The research team aboard the Shimada used the Beagle ROV from Marine Applied Research & Exploration (MARE) and also deployed temperature probes to be collected this summer, along with samples of *Lophelia pertusa* coral (collected live for experimentation) and sea fan samples for age and growth studies. Another focus of the research team will be building upon the telemetry array around the islands in collaboration with a number of research partners. Chris also mentioned the Sanctuary Integrated Monitoring Network website as a resource for the RAP, and clarified that the site is not currently designed to be used for data integration.

Research Activity Updates:

Ben Ruttenberg (Cal Poly) reported that Cal Poly is working to build its marine program and he is interested in replicating some CINMS area projects up north. He works with Crow White, who is also a RAP member. Crow is currently involved in an assessment of Kellet's Whelk along the mainland and out at the islands.

Milton Love (UCSB) reported that he is working with Doug McCauley (UCSB) on a Giant Sea Bass Project. The Great Giant Sea Bass Count began last summer, and Milton's group worked with the SeaSketch team using data collected from recreational divers. He has received funds from the Coastal Fund for undergrads to promote this program. He plans to work with SeaSketch to expand the program so that divers can report year-round. Doug and Milton will begin a small pilot tagging project of Giant Sea Bass and is looking for possible data sources with landings or presence absence of the species. Milton is also working on a study comparing impacts from electrically charged and non-charged cables and how renewable energy power cables might alter the behavior of crabs. No effects seen so far.

Stephen Wertz provided a handout with updates on CDFW activities and also reported that the department has been comparing the status of sea cucumbers in and outside the marine reserves. Biologists are concerned about the status of the sea cucumber fishery outside the reserves.

Dave Siegel reported that the Plumes and Blooms project, which he heads, has been renewed for three years, though the amount of funding has decreased each time the program is renewed. His group focuses on phytoplankton community structure and couples with the Marine Biodiversity Observing Network (MBON). He also reported on work assessing kelp forest cover using remote

sensing and ongoing hyperspectral imagery work. He is currently evaluating through 30m spatial resolution LANDSAT data.

Jessie Altstatt (CINMS) reported that she has been working to digitize files of Jack Engel, who retired last year. The data from Jack's monitoring now exist at the UCSB science library for those interested in the data from that work. In partnership with CINMS Jessie plans to continue that work with CINMS this summer along with an assessment of the extent of eelgrass beds around Anacapa. Jessie manages the CINMS LIMPETs program and is also writing a quality assurance plan for program participants.

David Kushner (CINP) reported that the Park is continuing kelp monitoring efforts and updated the group on changes to the intertidal program, including the likely addition of vertical transects. If past patterns repeat he predicts an upcoming increase of purple sea urchins at the islands associated with the sun star die-off. While black abalone have dramatically increased at some sites at Santa Cruz and San Nicolas Islands, their recovery has been much slower at the other Islands. NPS is seeing a moderate number of small sea stars during their intertidal trips to the islands. He also noted the increasing amount of *Sargassum horneri* at the Islands – this species was first noticed in Long Beach Harbor in 2003 and was likely introduced to the region most likely via shipping. Additionally, Dave noted the presence of likely one of the longest periods of warm water at the islands and its potential to impact species presence there.

Mark Steele (Cal State Northridge) reported that he is working on a new National Science Foundation (NSF) study on sex changing fish. Graduate students in his lab are working on a variety of projects including artificial reef studies, densities of green abalone at Catalina and the effects of *Sargassum horneri*.

Dan Reed (UCSB) updated the group on MBON projects, including a genomics/molecular component funded by BOEM that looks at prokaryotes and eukaryotes. Dan is also working on a NSF-funded coastal research project that uses an autonomous glider and collects physiological and biological data. He will be speaking about LTER data at an upcoming Scripps workshop. Dan's group is also working on a Sea Grant project studying the ecological consequences and biotic resistance of *Sargassum horneri*. PhD student Lindsay Marks has a fellowship to focus on this work, and the lab received funding from National Marine Fisheries Service (NMFS) to test control measures (i.e., a super sucker machine). Dan also noted that giant kelp has disappeared at Catalina Island due to warm water.

Jenn Caselle (UCSB) reported that PISCO has wrapped the field work for the South Coast MPA baseline and data integration is beginning. Results from the MPA monitoring will be featured in a special issue of Marine Ecology. Jenn and PISCO have also released a pamphlet on 10 years of subtidal monitoring around the Channel Islands, and the full results are in a manuscript currently submitted to *Scientific Reports*. Data show that a number of fishery targeted species are increasing both inside and outside the reserves. Invertebrates however are not showing the same level of recovery. PISCO has also been assisting CDFW on a number of projects including monitoring Sea Star die-off and Sea Cucumber populations. Jenn is also working with BRUVs

(Baited Remote Underwater Vehicles) to assess their ability to measure populations. Jenn is also looking to develop species distribution models of different fish species around the island.

Jonna Engle (CCC) reported that the Beacon kelp restoration project around Goleta Beach has been permitted and installation of the granite columns will begin soon. The reef ball project is not proposed for a permit. Also, the CCC received NOAA funds to assess the ecological effects of development on beach communities and these will now be used in future permit processes.

Donna Schroeder (BOEM) updated the panel on some of BOEM's priority research areas including digital elevation models, predictive modeling focused on seabirds and marine mammals, and seafloor mapping (noting that huge areas of the sanctuary have yet to be mapped). BOEM is also involved in a submerged landforms project with CINMS and CINP that will study underwater archaeology and could provide information on early human migration patterns. Donna added that the addition of social and economic interests/components could be useful for the RAP.

Rachel Cartwright (Cal State Channel Islands) introduced herself as a new member of the RAP. Although much of her research is based in Hawaii, she is very interested in more local projects. She studies marine mammal tissue samples from baleen whales and added that she recently used LIMPETS data in her biostatistics class. She is looking for connections to anyone with access to cetacean tissue for research purposes.

Jenna Driscoll (Santa Barbara Channelkeeper) reported that Channelkeeper wants to expand partnerships with the research community and has a boat that can visit the Channel Islands or Naples. The boat is about 30 feet and can go about 12 knots. The boat makes MPA watch trip every two weeks and currently visits the islands 1-2 times per year.